

# PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

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## Improvements in Apparatus for Separating Oil and the like from Waste Waters.

WE WARSTEINER UND HERZOGLICH SCHLESWIG-HOLSTEINISCHE EISENWERKE A.G. of Henriettenhütte, District Liegnitz, Germany, a German Company, and  
5 GEORG KERSTEN, of 8, Hauptstrasse, Berlin-Zehlendorf, Germany, a German citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The object of the present invention is to provide a device by means of which it is possible to separate from the waste  
15 waters of garages or the like cleaning rooms the light liquids or oils liable to catch fire, and to prevent such light liquids or oils from reaching the sewers.

The present invention comprises a separator for the separation of inflammable light liquids escaping with waste waters of the type provided with means to automatically seal the separator after the separation of a certain quantity of light  
20 liquid, characterised in that said means comprises an airbell (such as 10), a float vessel within which the air bell is mounted, the said light liquid overflowing into said float vessel and producing  
30 a compression of the air enclosed in the airbell, a pipe (such as 12) and a water seal (such as 16), the compression of the air being transmitted through said pipe to the ascending and descending branches  
35 of said water seal whereby the flow of water through said water seal is arrested.

In the accompanying drawing a device according to the invention is shown by way of example.

40 The waste water leaving the garage or a similar cleaning room and which is mixed with light oils liable to catch fire passes through the gutter of the floor and through a pipe to the separating device  
45 and flows by way of the inlet connecting tube 1 through the water seal 2 into the separating chamber 4. The flow of waste water in this enlarged chamber 4 is reduced thereby facilitating the separation of the light oil from the waste water. The light oil accumulates as a layer 3 on top of the waste water. The water seal 2 prevents the light oil from flow-  
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[Price 1/-]

ing back into the supply pipe. In the separating chamber 4 the solid particles  
55 are separated from the liquid and drop to the bottom, where they are collected upon the bottom of the bucket 6. The bucket 8 is provided with slots 5 through which the waste water passes to the  
60 double water seal 16, from where it flows by way of the outlet connecting tube 17 into the sewer.

The sealing device is formed by a cast iron float 9 which may be moved about  
65 a hinge 14. Fixed in the float 9 is a cast iron air bell 10 which is, by means of a connecting pipe 12, connected in an airtight manner to the water seal head 18. If light oil flows by way of the siphon  
70 11 into the float 9, the latter sinks until it is arrested by seating upon the projection 15. The sinking of the float 9 accelerates the flow of light oil into the float. The level of the light oil rises to such a  
75 height in the float, that the air bell 10 will partly be filled. The air in the bell 10 is displaced and compressed and is forced through the connecting pipe 12 to the water seal head 13. The water present in the branches of the water seal 16  
80 is pressed back so far, that the discharge of waste water from the separating chamber is positively stopped. To prevent the water seal 16 from being sucked  
85 empty, an air admission pipe 18 is provided by the third branch.

To ensure an efficient operation of the apparatus, the float 9 must have a weight slightly less than the weight of water it displaces. If the separating device is empty, the float 9 rests upon the projection 15. As soon as water flows into the device, the float rises. The arrangement is such, that under a moderate swell  
95 which may occur in practice the float may rise to such a height, that it is not filled if the required amount of light liquid has not been separated.

If now light liquid is separated, the water displaced by the float will partly be displaced by the specific lighter light oil. As the weight of the float remains the same, the float submerges deeper into the liquid. After a certain amount of light  
100 oil has accumulated, the float will sub-  
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merge so deep, that light liquid flows by way of the siphon 11 into the float 9 which causes the above mentioned sealing.

The separating compartment and the chamber containing the float are closed by covers 20 and 19 respectively. To prevent a dangerous accumulation of explosive gases, a vent pipe 21 is provided.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A separator for the separation of inflammable light liquids escaping with waste waters of type provided with means to automatically seal the separator after the separation of a certain quantity of light liquid, characterised in that said means comprises an airbell (such as 10) a float vessel within which the air bell is mounted, the said light liquid overflowing into said float vessel and producing a compression of the air enclosed in the air bell, a pipe (such as 12) and a water seal (such as 16), the compression of the air being transmitted through said pipe to the ascending and descending branches of said water seal whereby the flow of water through said water seal is arrested.

2. A separator as claimed in claim 1,

characterised in that the float vessel comprises a hollow body (such as 9) open at the top and adjustably mounted by means of a hinge (such as 14), the weight of float vessel being such that upon a certain quantity of liquid having been separated the float vessel sinks and is filled with the light liquid.

3. A separator as claimed in claims 1 or 2 characterised in that the filling of the float vessel is effected by a siphon (such as 11).

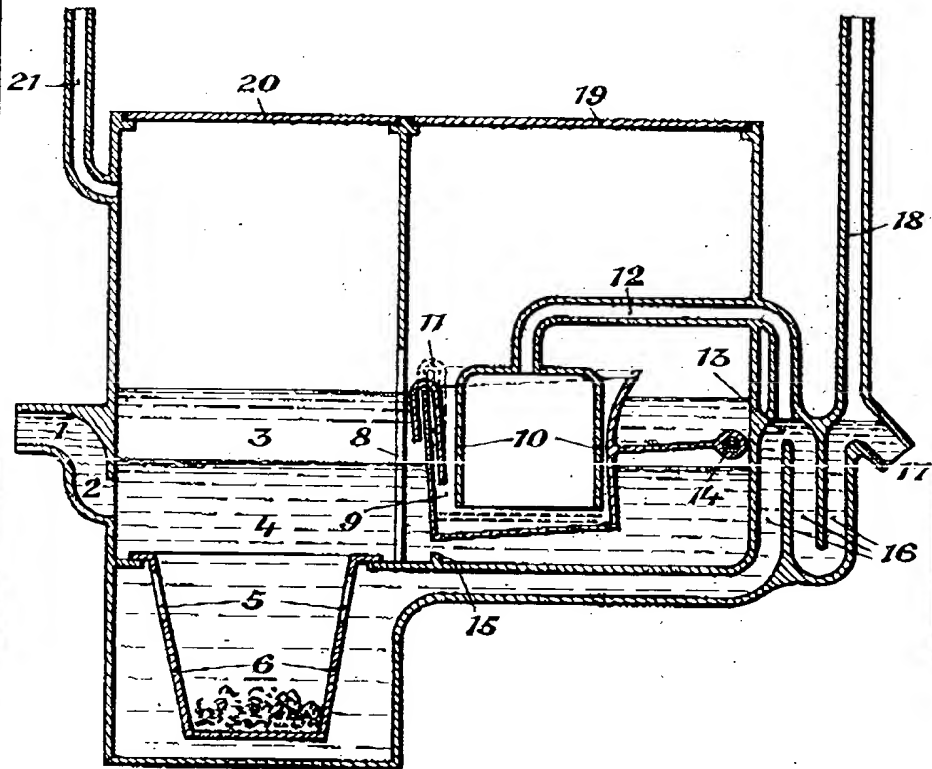
4. A separator as claimed in claim 1, characterised in that the water seal (such as 16) is provided with an air supply pipe (such as 18) to prevent the said water seal from being sucked empty.

5. A separator for separating inflammable light liquids escaping with waste waters substantially as described or substantially as shown in the accompanying drawings.

Dated this 26th day of August, 1929.  
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*[This Drawing is a reproduction of the Original on a reduced scale.]*



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